

(Citation 7:)

JP U.M. Application Disclosure No. 7-42152 - July 21, 1995

U.M. Application No. 5-69239 - December 24, 1993

Applicant: Nichia Kagaku Kogyo K.K., Tokushima, Japan

Title: Greenish blue light emitting diode element and light  
emitting diode signal light

Detailed Description of the Utility Model:

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Next, a signal light into which the greenish blue LED element  
is incorporated will be explained by referring to Figs. 2 and

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As shown in Figs. 2 and 3, this signal light comprises: a main  
body part 20 containing a power source and a power source circuit;  
a greenish blue LED element 22, an yellow LED element 24, and  
a red LED element 26; and a cover part 26 covering these three  
LED elements 22, 24, 26 and having one end engaged with the main  
body part 20.

As the above-mentioned blue LED, the greenish blue LED element  
22 has a cylindrical holding part made of polymethylmethacrylate  
(PMMA) into which a greenish blue fluorescent dye is mixed. The  
yellow LED element 24 has the above-mentioned blue LED with high  
luminance and a cylindrical holding part made of polymeth-  
ylmethacrylate (PMMA) into which a small quantity of orange  
fluorescent dye for realizing the conversion into the light with  
the wavelength of 570nm is mixed. Likewise, the red LED element  
has the blue LED with the high luminance and a cylindrical holding  
part made of polymethylmethacrylate (PMMA) into which a small  
quantity of red fluorescent dye is mixed.

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Citation 8

(Excerpt from Nikkei Sangyo Shimbun; September 13, 1996)

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The white light was emitted by providing the layer of the YAG (yttrium-aluminium-garnet) phosphor over the blue LED chip. According to the emission characteristic at 10mA, the color temperature of the white LED lamp is equivalent to that of a daylight fluorescent lamp. The degree of color reproduction of the white LED lamp is approximately equivalent to that of a highly efficient fluorescent lamp (three-wavelength-type).

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The newly developed LED lamp has the structure of one chip with two terminals, and has the advantage that the manufacturing unit price can be lowered below the half and the color balance is not likely to be lost.

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